

# Weekly Report

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## Intro

Some contents are described in daily reports. This week I did a survey on community detection and its extensions.

## Research

This week I read [1] and find that there are some more points that can be added to the current visual community detection project for more complex scenario:

- The semantic issue of communities are a problem in the previous work. One of the problem is that, in the old process, it is not available to interpret when the user starts the analytical process and when to stop because no ground-truth is provided. Under this circumstances the end of analysis might be a result of “interpretable” community structure, which is mentioned in [1] as a method to measure the quality of community detection algorithms.
- As the current social network usually contains multiple kinds of nodes and relations, it is considerable to involve heterogeneity into our project. One of the example is that the mobile-phone communication network data has two types of edges (phone calls and short messages), there might be an information loss if only one type of the edges are used. Also, in the field of community detection, recently years there are really some works on heterogeneous network.

For the re-implementation of the whole framework, Junxuan Chen is now helping write a node-link view migrated from Gephi.

## Plan for Next Week

In the next week I will spend most my time on the two research projects. For the visual community detection project, I will make a detailed plan and visual design for the two points mentioned above.

## References

- [1] L. Tang and H. Liu, *Community Detection and Mining in Social Media (Synthesis Lectures on Data Mining and Knowledge Discovery)*. Morgan & Claypool Publishers, Sept. 2010.